

COLYMBUS TORQUATUS, Brünnich. Great Northern Diver.

A specimen of this Diver, in immature plumage, was sent to me, marked as having been obtained at Fort Stockton, 6th November.

PODICEPS CALIFORNICUS (Heermann). California Grebe.

I shot one specimen at Mitchell's Lake, in December 1863.

PODILYMBUS PODICEPS (Linnæus). Pied-bill Grebe.

Not uncommon near San Antonio in the winter. I observed several on a pond near Matamoras in August 1864, and shot two, one of which I now have in my collection. Another (a young bird) was also sent to me by Colonel M'Cormick, in the collection made by Mr. P. Duffy at Fort Stockton.

III.—*Field Notes on Lophortyx gambeli.* 28 miles
By ELLIOTT COUES, M.D.

To study the habits of Gambel's Quail we must leave far behind us all the luxuries and comforts of civilized life. A thousand miles beyond the advance-wave of the western tide of civilization we must go, and stop just before meeting the receding under-tow that is now setting back from the Pacific coast of North America towards the Rocky Mountains. Between the two points there is a wild region over which the savage Apaché Indian is still master, where the white man only retains his hold by daily-renewed hand-to-hand conflicts. It is a region of which it may be truly said that there is "the very grandeur of desolation." The face of nature is torn, as by Titanic violence, into yawning chasms, rocky cañons, and dry, tortuous arroyos, upheaved into stately mountains and grotesquely-shaped picachos and precipice-bounded mesas, covered for hundreds of miles with black lava vomited ages ago from extinct and now unrecognizable volcanos. Rivers there are in whose dry sandy beds the traveller may perish from thirst—and vast plains, too, covered with dry crisp grass and sage-brush (*Artemisia*) and grease-wood (*Larrea mexicana*), yet almost deserts from this same dearth of water. But it is a country of anomalies and contrasts as well as of wonders. Embosomed in the wildest of mountains are lovely valleys, moist, green, and fertile. Vast forests of noble pines and firs, and immense tracts

of piñon (*Pinus edulis*) and cedar (*Juniperus pachyderma*, and one or two other species), alternate with barren and desolate lava mal-pais*; hill-sides are covered with oak, mezquite (*Algarobia glandulosa*, the sweet "beans" of which are valuable for food), and manzanita (*Arctostaphylus tomentosus*) (literally "little apple," from the appearance of the berries); while the borders of running streams are fringed with cotton-woods (*Populus monilifera*) and willows and walnuts, and fenced in by almost impenetrable walls of grape-vines, wild gooseberries, green-briar, rose-bushes, and, it seems, every variety of rank luxuriant undergrowth.

The region thus sketched in the most meagre outline is Arizona Territory, only just now beginning to be reclaimed from its pristine wildness, and appropriated by the white man for his own use, on the principle that "might makes right"—a country where man stands face to face with Nature herself, and must sturdily wrest from her his subsistence or perish. Civilization, in Arizona, is only, as yet, like the few desultory, hesitating drops that form the *avant-couriers* of the approaching shower. Men live scattered over the country in little knots, gathered together for mutual safety, and the intervening distances are full of danger and difficulty. Steam has, as yet, shortened no one of Arizona's miles, nor lent its giant strength to the farmer or the mechanic; and so rudely simple is the mode of life, that Arizona seems, to one reared in refinement and luxury, hardly less strange in its society than in the want of it. But here is the chosen home of this beautiful Plumed Quail; and here, too, must the naturalist make his home for awhile, if he would learn its habits.

Walk abroad with me this bright October morning. We must not go far, or our scalps may decorate an Apaché wigwam to-morrow. How different is everything from the scene presented at the same season in New England! Mountain, plain, and valley, forest, stream, and desert, are each cast in a widely diverse mould. The fauna and the flora, and the very rocks, are of a new, strange type; while the atmosphere itself seems

* The term applied to a country whose surface is covered with more or less comminuted results of volcanic eruption.

hardly composed of the same elements. Instead of the gorgeous tints of maples, beeches, and hickories, the deep, never-changing sombre green of the pines and cedars meets the eye. No cold, bracing air is felt: all the rich, luxuriant warmth of September is still unaltered; but an indescribable something there is about it, so pure, fresh, and invigorating, that the thrilling of the nerves it causes is almost intoxicating. But deep draughts of the living oxygen we must take, and dilate the chest to the utmost; for we are seven or eight thousand feet above sea-level, and the dry thin air hardly satisfies lungs accustomed to a heavier, more humid atmosphere. In all there is a strange admixture of new and wonderful with old and familiar things. Along the banks of some clear creek we may fancy ourselves still in New England; for a heavy fringe of cotton-wood, willow, and walnut clothes its banks, and their leaves are of the purest golden. The showy *Solidago*, with its brightest of chrome flowers, meets us on every hand; and as we recognize the old friend, side by side with it we notice the crimson-red pulpy fruit of the prickly pear*—a strange neighbour. And in the tangled patches of *Smilax*, in the graceful festoons of wild grapes, and clusters of rose-bushes we recognize still other familiar things, which, however, seem rather to heighten by contrast, than to lessen, the feeling of loneliness and home-sickness that so many new and strange things conspire to produce. The little ground-squirrel (*Tamias dorsalis*), scampering among yonder rocks, is not our familiar little “chip-muck,” but a shy, retiring species that never leaves his favourite boulders. That little brown bird that is sitting on yonder dead limb is surely a Pewee (*Contopus*, sp. nov.), but how different is his cry, as he darts after a passing insect, from the sad, soft, “pee-a-wee” that fills our eastern woods. The harsh scream of the Jay (*Cyanurus macrolophus*) in that tall pine certainly sounds familiar; but as we catch a glimpse of him through the thick foliage, lo! he is almost black instead of olive, and his crest is so long that it seems ready to topple over. Wander on, and muse on, and let space-

* Any one of the numerous species of *Opuntia*, which, with many kinds of *Cereus* and other genera of *Cactaceæ*, form a very prominent and characteristic feature of the Arizonian flora.

defying thought fly eastward, where are all you love most on earth, and try to foretell what "all those sad to-morrows" that must elapse ere you see them again will bring. Hark! What is that rustling in the thick brush beside you? "*Chink-chink-chink*," whisper a dozen anxious throats; and the next moment, *whir-r-r!* up and off like the wind, scatter the startled bevy, seeming to shake the very air with the vigorous beats of their strong concave wings. We have stumbled upon a bevy of the lovely Plumed Quail (*Lophortyx gambeli*) enjoying the first warm days of the sun after the cool, frosty nights. Now let the game, this glorious autumn day, dissipate your sad home-yearnings; forget them all in the excitement of the chase; for the birds are well worthy of the keenest sportman's pride. Mark them down; hold gun, and nerves too, in readiness for less than a moment's warning. Advance quickly: these birds rarely lie so close as the Virginia Quail (*Ortyx virginianus*), and you will hardly find them where you saw them alight. See the dog! How his eyes glare, and his lips slaver, and his rigid limbs quiver! Bang! bang! Well done! You have dropped both birds, and the dog will bring them. No mean feat it is to drop two single Quail at a double shot. Reload in haste, for, remember, a sportsman's "first blood" only whets his appetite; his bag must be filled before his ardour is sated. So shoot away, only seeing that you kill no more than you wish to use; God made them for your pleasure: do not abuse his kindness.

Now let us stop and rest awhile on this grassy knoll, and look more carefully at our game. What beauties they are! Mark the splendid crest of long, dark, glossy, helmet-shaped feathers, growing broader at their ends, and curving so gracefully forwards. What a clear, pure colour is that of their back! and how artistically is its uniformity relieved by the pretty, deep, purplish-red and white of the long feathers of the sides, that curl over the edges of the wings and seem to hold them up! And what a regular double row of yellow scallops there is adown each side of the back! How pure a black spot in the middle of the belly! What a fine contrast is presented by the chestnut crown and black throat, each hemmed so neatly by a border of white! And so plump! and such a deliciously fragrant odour

is exhaled from their fresh bodies ! Should the suddenly snapped thread of home-thoughts float again before your mind, I am sure you will exclaim, between a sigh and a smile, "There are some things worth leaving home for, and ornithology is one of them !"

Beautiful to the eye, soft to the touch, fragrant to the smell, delicate to the palate, indeed, is the Plumed Quail—a superb bird. Since the first one I saw, years ago, stuffed, and awkwardly nailed to a bit of board to "grace" a museum, I have always admired them ; and now that I have seen them alive, in their homes, and handled them before the brightness of their eyes was dimmed, and kept the little chicks as pets, I love and admire them the more, and think there is scarcely another bird in our country so beautiful. Their form is plump and rounded, though without the slightest trace of dumpiness ; for their necks and tails are very long, their heads small, and the elegant recurved plume gives their whole bearing an appearance of graceful pride. Their carriage is firm and erect, but at the same time light and easy. It is a beautiful sight to see the male bird strutting proudly, with erect head, flashing eyes, and quivering plume, along the fallen log beneath which his little family are snugly hidden. So brave and so weak ; so full of the will to protect them, so wanting in the power ! Among men is there a situation that fills us with warmer admiration, yet affects us more sadly, than this very one ? The colours, too, of the bird are no less pleasing than is its form. There is, indeed, no gorgeous display of colour, no flashing lustre or changing of tints ; yet the harmonious blending of some, the artistic contrast of others, together produce rare beauty. Formed to please the naturalist, the artist, and the sportsman—three types of men by no means very dissimilar—the Plumed Quail has yet other charms ; for in the fragrant odour and delicious flavour of its soft white flesh an epicure of the most capricious taste cannot fail to be abundantly satisfied. And with a disposition as amiable and peaceful as its colours and form are beautiful, there is nothing to be scored against its long list of good qualities. Could but one of our species attain to its innocent perfection !

It was late in July when I arrived at my destination in Arizona, where, as I soon learned, the Quails were exceedingly abundant. Almost my first act, ornithologically speaking, was to stumble upon a brood just out of the egg; but the active little chicks scrambled off and hid themselves so dexterously that I could not catch one. I remember that I then mistook them for the *Oreortyx pictus*, from the shape of the crest, which at an early age is not at all recurved; and also that I wondered to find newly-hatched birds so late in the season. But throughout the month of August I met with broods only a few days old. The following year, old birds were found mated by April 25th, and I saw the first chick on the 1st June. The species must, then, be engaged in incubation, at least in the latitude where I made my observations, during the whole of May, June, July, and part of August; and I think it probable that they raise two, or possibly sometimes three broods a year. The largest numbers that I have ever seen in a brood were between fifteen and twenty; the smallest, six or eight. By the 1st October, though I occasionally met with half-grown birds, the majority were already nearly or quite as large as the parent, and so strong of wing as legitimately to warrant the sportsman's attention.

As long as the young broods require the care of the parents, they keep very close together, and when alarmed either run away so rapidly, or squat so pertinaciously, as to be very difficult to flush; and when forced up, they fly off in close company, and generally quickly alight again. At this time they take to low limbs of trees and to bushes, as often as, or, as I have sometimes thought, oftener than to the ground. There they sit still, closely huddled together, and, fancying themselves concealed, admit of a very close approach. Later in the season, however, when fully mature, they much more rarely take to trees, and are far more watchful and difficult of approach. The first intimation that a bevy is near is invariably a single note, quickly repeated two or three times, followed by a rustling of dry leaves as the flock starts to run. The next step towards them, and they are off with a whirr, scattered like shot in every direction.

With the exception, perhaps, of thick pine woods, wanting in undergrowth, these birds frequent every sort of locality. They seem, however, to be particularly fond of the tangled, briary undergrowth and thick willow copses of the creek-bottoms, and the heavy "chaparral" that fills the mountain-gorges through which flow little streams. But they are also very plentiful on broken, rocky hill-sides, among the thick scrub-oak*, mezquite, and manzanita bushes that almost invariably cover such situations, as well as in the patches of heavy dry heath (*Artemisia*, *Larrea*, and the like) that converts extensive plains into chaparral†. But I have so often found them in every situation, that I can hardly say that they have any special preference. In laboriously climbing among huge bare granitic or old-red-sandstone boulders, hunting for *Salpinctes obsoletus*, I have often found them; and once a bevy whirled up from a little dry knoll in the midst of an extensive reed-marsh, where I was wading in water up to my middle, trying to detect an *Agelaius tricolor* or *A. gubernator* among the thousands of *A. phæniceus* all about me.

Like all its tribe, Gambel's Quail is chiefly graminivorous and frugivorous, though insects form no small portion of its food. Seeds of all kinds of grasses, berries of all sorts, wild grapes, all the numerous small plant-infesting beetles, with flies and other soft insects, are all to be found in its crop. Doubtless, should Arizona prosper in an agricultural sense, wheat, barley, and other cereals will become acceptable to it; but it has hardly as yet had an opportunity for the cultivation of a taste for these productions. In early spring it feeds very extensively on the tender, fresh buds of young willows; and then the salicine in these communicates more or less of a bitter flavour to the flesh, just as, in Labrador, I have found the flesh of the *Canace canadensis* and *Lagopus albus* greatly injured in flavour by the resinous buds on which they feed during spring and summer.

I have heard three distinct notes from *Lophortyx gambeli*, and

* All the species of *Quercus* that I have met with in Arizona, with one, perhaps two exceptions, are rather scrubby bushes than trees.

† "Chaparral," a generic term, very indefinitely used to designate tracts covered with any sort of thick, scrubby bushes; "brush" is our nearest equivalent.

only three, though there may be more. The first is the common cry, uttered on all occasions of alarm, or to call or keep a bevy together. It is a single, mellow, clear "chink," with somewhat of a metallic resonance, quickly repeated an indefinite number of times. I may remark, by the way, that it is so exactly similar to the common note of *Guiraca melanocephala*, that I have been more than once deceived. The next kind is a clear, loud, energetic whistle, resembling, to my ear, the syllables "killink, killink." This is chiefly heard during the pairing-season, when the male in some secluded spot is busy paying his addresses to and trying to win the favour of his chosen partner. It is analogous to the "bob-white" that has earned for *Ortyx virginianus* its popular appellation. The last note is the "song" proper of the species, though, if song it be called, it is so entirely upon the principle of *lucus a non lucendo*; for anything more unmusical can hardly be imagined. It is uttered, I believe, only by the male, and only, I am also of opinion, when the female is incubating, or attending to a very young brood. At sunrise and sunset the song is cheerfully poured forth. Mounted on the topmost twig of a scrub-oak or willow-bush, near the spot where his mate is sitting on their joint treasures, with outstretched neck, drooped wings, and plume dangling negligently over one eye, he makes the place resound with his odd, guttural, energetic notes. To me they sound something like the cawing of a cachectic Crow weary of life, or perhaps in love, a little mixed in tone with the cooing of a Dove. But what matters it how awkwardly we may interpret his Anacreontics, she, for whom they are intended, understands them well; and sweeter than all other sounds must they fall upon her ear, assuring her of undiminished love and unwavering devotion.

The elegant crest which forms so marked a feature of this species becomes apparent at an exceedingly early age; in fact in chicks only a few days old it is readily discernible. It then consists of a small, short tuft of three or four feathers, rather brown than black, not growing larger towards their tips, and directed straight backwards. It is some time before the feathers become club-shaped and directed forwards; indeed the change is not complete until full maturity is attained. In the female,

although the plume is of the same general shape and character as in the male, yet it is rarely, and then only very slightly, recurved, and is always much shorter. In an adult male in spring the plume is pure glossy black, and from an inch and a quarter to nearly two inches in length, averaging, perhaps, one inch and a half. The female rarely, if ever, has a plume more than an inch long. The number of individual feathers composing this ornament varies greatly. Sometimes there is but a single one, in other instances as many as eight or ten; five or six is the average. They all spring from a single point in the middle of the vertex, just posterior to the white line that traverses the crown from eye to eye. The individual fibrillæ are rather more loose, especially the terminal ones, than are those of ordinary feathers. The webs are bent abruptly backwards from the shaft until they are nearly parallel to each other, and the shaft itself forms the convex anterior border of the feathers. Each feather is thus folded or doubled back upon the one next succeeding, the whole being packed together in an imbricated manner as one feather. The mobility of the crest is very considerable, and is apparently entirely subject to the will of the bird. So far as I have had opportunities for observing, it is oftenest carried very nearly erect; though at times it is strongly inclined forward, overhanging the eyes or bill, or is allowed to droop horizontally on the nape.

Besides the distinction in the crest already mentioned, the female differs from the male in the total absence of the chestnut, black, and white markings of the head and throat, and she also wants the large black abdominal area. In other respects she is similar, except that there is a general dulness of all her tints, and that she is considerably smaller. The difference in length amounts to an inch or more, and her other dimensions are proportionally less. The differences between adult individuals of either sex are inconsiderable, and are chiefly confined to variations in the extent and intensity of the markings.

The moult, which takes place immediately after the completion of the duties of incubation, is exceedingly slow and gradual; so much so, that I have very rarely shot a specimen, at any season, so depilated as to be unfit for preservation. The feathers

of the plume are cast very gradually, so that, though instances do occur, it is unusual to find a bird entirely deprived of this ornament.

Compared with the eastern Quail (*O. virginianus*), from the sportsman's standpoint, Gambel's Plumed Quail is more difficult to kill. Not that it rises with more startling suddenness, or flies faster; for I noticed no material difference in these respects. But when a bevy is flushed, and one, or at most two birds secured, it is exceedingly difficult, and usually only by chance, that other shots are obtained. For, except under certain circumstances, they lie very badly; and when they drop after being for the first time started, it is not usually to squat and remain hid, but to run as fast and as far as possible; so that if found at all, it will be dozens of yards from where they were marked down. This propensity to run, which is also a great obstacle to their being flushed within a proper distance, is exceedingly troublesome both to the sportsman and his dog; so much so, that the best-trained dogs can often be of but little or no service. It is true that this habit of running affords many shots on the ground, and often places the whole bevy directly under fire; but no true sportsman would thus ingloriously fill his bag by "potting" a bevy of such noble game-birds. Like all the tribe, their flight is exceedingly rapid and vigorous; but it is always even and direct, so that it only requires a very quick hand and eye, and the usual intuitive calculation for cross-shots, to kill them readily. Notwithstanding all that I have heard to the contrary, I consider them far from being tough birds; and No. 8 shot is abundantly large enough for them. The fault in most cases, I presume, is with the shooter rather than the shot. I may add that many of the places in which bevs are to be found would compare unfavourably with the worst Woodcock-brake of the Eastern States as regards facilities for obtaining a fair shot. I have had a bevy flushed all around me, and hardly caught a glimpse of a feather. But these and all other difficulties should only increase one's ardour, and confer additional value on the lovely birds when obtained.

Fort Whipple, Arizona,
August 1st, 1865.

262